APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,716	10/03/2001	Yau Wai Lucas Hui	851663.416USPC	5921

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EXAMINER
WONG, ALLEN C

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 September 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-29</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,12-14,19,24 and 25</u> is/are rejected.

7)☒ Claim(s) <u>4-11,15-18,20-23 and 26-29</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>01 September 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed 9/1/05 have been fully considered but they are not

persuasive.

Claims 4-11, 15-18, 20-23, and new claims 26-29 are objected to as being

dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening

claims.

Regarding lines 9-12 on page 15 of applicant's remarks, applicant asserts that

Singhal does not disclose the steps of claim 1. The examiner respectfully disagrees.

The specifics of claim 1 limitations have been clearly elucidated below in the rejection.

Singhal does meet the broad limitations of claim 1.

Regarding lines 13-14 on page 15 of applicant's remarks, applicant argues that

Singhal does not determine an overall target bit rate for encoding the sequence. The

examiner respectfully disagrees. In col.5, ln.52-55, Singhal discloses that the target bits

are determined from the number of pre-assigned or designated allocation of bits and the

buffer occupancy. Thus, Singhal discloses determining an overall target bit rate for

encoding the sequence.

Regarding lines 17-19 on page 15 of applicant's remarks, applicant contends that

Singhal does not suggest that the target number of bits for the single slice or frame

could or should be used as an overall target bit rate for the entire sequence of images.

The examiner respectfully disagrees. As previously stated, Singhal's citation of col.5,

ln.52-55 refers to the controller part of the circuit of fig.2, where fig.2 is a motion compensated DCT interframe coder that allocates bits and adjusts the quantization parameter in a recursive, recyclical manner via recursive buffer rate control mechanism for encoding the entire sequence of images. Thus, Singhal discloses the target number of bits for the single slice or frame could or should be used as an overall target bit rate for the entire sequence of images.

Regarding lines 20-22 and 24-25 on page 15 of applicant's remarks, applicant states that Singhal does not disclose determining a bit allocation and target quantization step size for encoding a first segment based on a segment target bit rate calculated using said overall target bit rate. The examiner respectfully disagrees. In col.5, ln.22-28 and fig.3, element 27 is a bit allocation processor that determines the bit allocation and he quantization step size for encoding a first segment based on a segment target bit rate calculated using the overall target bit rate as obtained from the circuit in fig.2, the motion compensated DCT interframe coder that allocates bits and adjusts the quantization parameter in a recursive, recyclical manner via recursive buffer rate control mechanism for encoding the entire sequence of images. Thus, Singhal discloses determining a bit allocation and target quantization step size for encoding a first segment based on a segment target bit rate calculated using said overall target bit rate.

Regarding lines 1-4 on page 16 of applicant's remarks, applicant asserts Singhal does not disclose encoding a first segment using a variable bit rate encoding method according to the target quantization step size even though Singhal is primarily directed to variable bit rate encoding method. The examiner respectfully disagrees. As

explained in the above paragraphs and in the rejection below, since Singhal discloses determining a bit allocation and target quantization step size for encoding a first segment based on a segment target bit rate calculated using said overall target bit rate, the applicant has already conceded that Singhal primarily directed to a variable bit rate encoding method, as disclosed in element 200 of fig.2. Thus, Singhal discloses encoding a first segment using a variable bit rate encoding method according to the target quantization step size.

Regarding lines 5-7 on page 16 of applicant's remarks, applicant argues that Singhal does not disclose determining a difference between the number of bits used to encode said first segment and said first segment bit allocation and distributing said difference for use in encoding at least one subsequent segment to determine a subsequent segment bit allocation. The examiner respectfully disagrees. In col.5, ln.8-14, Singhal discloses that variance processor 8 does determine a differential image, and that the differential image comes from determining a difference between the number of bits used to encode said first segment and said first segment bit allocation. Thus, Singhal discloses determining a difference between the number of bits used to encode said first segment and said first segment bit allocation. Also, Singhal discloses the differential image data or the difference, at output of element 8 of ifg.2, is fed into element 27 of fig.3 for determining a subsequent segment bit allocation, where the distribution of the difference for encoding in at least one subsequent segment to determine a subsequent segment bit allocation. Thus, Singhal discloses distributing

said difference for use in encoding at least one subsequent segment to determine a subsequent segment bit allocation.

Regarding lines 14-16 on page 16 of applicant's remarks, applicant contends that Singhal does not disclose determining a new target quantization step size for encoding a said subsequent segment on the basis of a new target segment bit rate calculated using said segment target bit rate and the distributed difference. The examiner respectfully disagrees. In fig.4D and element 30 of fig.3, Singhal discloses the quantization step size processor for determining a new target quantization step size for encoding a said subsequent segment on the basis of a new target segment bit rate calculated using said segment target bit rate and the distributed difference, based on the recursive buffer rate control mechanism for encoding the entire sequence of images of the motion compensated DCT interframe coder of fig.2. Thus, Singhal discloses determining a new target quantization step size for encoding a said subsequent segment on the basis of a new target segment bit rate calculated using said segment target bit rate and the distributed difference.

Dependent claims 2-3 are rejected for at least similar reasons as claim 1.

Regarding lines 5-7 on page 17 of applicant's remarks, applicant states that Singhal does not disclose the bit rate adjustment processor that uses a target encoding quantization step size and an average quantization step size to determine a target bit rate. The examiner respectfully disagrees. In col.5, ln.22-28 and fig.3, element 27 bit allocation processor that determines the bit allocation and element 30 is a quantization step size processor that can properly adjust the quantization step size and achieve a

target quantization step size. And in col.3, ln.29-34 and col.5, ln.3-5, Singhal's fig.2

uses a recursive rate control encoding scheme is applied to recursively update the

quantization step size. In fig.3, Singhal discloses the quantization step size processor

30 utilizes the efficiency coefficient control unit to manage the buffer occupancy and

recursively apply or maintain the substantially constant bit rate over the sequence of

images, ie. an average quantization step size for pictures in the current group of

pictures. Thus, Singhal discloses the bit rate adjustment processor that uses a target

encoding quantization step size and an average quantization step size to determine a

target bit rate.

Regarding line 20 on page 17 to line 9 on page 18 of applicant's remarks,

applicant traverses the objection to the specification. The examiner respectfully

disagrees. Although the applicant has supplied an abstract on a separate paper,

drawings in a separate paper, and claims in a separate paper, however, the applicant

still needs to submit the specification in a separate paper because a faxed copy of the

published PCT application is not acceptable for examination purposes, especially if the

case, for some reason, were to be patentable, as required by 37 CFR 1.4(c). Further, it

does not matter whether or not changes were made to the specification, a clean version

(without markings) and a statement that the substitute specification contains no new

matter must be supplied, as required by 37 CFR 1.4(c). Thus, the objection to the

specification is maintained.

Thus, the rejection to the claims 1-3, 12-14, 19, 24 and 25 is maintained.

Specification

1.   A substtute specification sent on 4/18/05 of the claims is required pursuant to 37

CFR 1.125(a) because the all of the components, ie. abstract, claims, disclosure and

drawings, of the current US patent application must be filed separately. The disclosure

of the specification as provided by applicant on 4/18/05 is deemed to be unacceptable

because the disclose submitted 4/18/05 should have been submitted as a separate

paper as required by 37 CFR 1.4(c). And, the drawings submitted on 4/18/05 should

have been submitted as a separate paper as required by 37 CFR 1.4(c).

A substitute specification must not contain new matter. The substitute

specification must be submitted with markings showing all the changes relative to the

immediate prior version of the specification of record. The text of any added subject

matter must be shown by underlining the added text. The text of any deleted matter

must be shown by strike-through except that double brackets placed before and after

the deleted characters may be used to show deletion of five or fewer consecutive

characters. The text of any deleted subject matter must be shown by being placed

within double brackets if strike-through cannot be easily perceived. An accompanying

clean version (without markings) and a statement that the substitute specification

contains no new matter must also be supplied. Numbering the paragraphs of the

specification of record is not considered a change that must be shown.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-3, 12-14, 19, 24 and 25 are rejected under 35 U.S.C. 102(b) as being

anticipated by Singhal (5,333,012).

Regarding claims 1, 2, 12, 13, 19, 24 and 25, Singhal discloses a method for use

in a moving pictures encoder for encoding a sequence of segments each having at least

one image, comprising the steps of:

determining an overall target bit rate for encoding the sequence of images (col.5,

ln.52-55, target bits are determined);

determining a bit allocation and target quantization step size for encoding a first

segment on the basis of a segment target bit rate calculated using said overall target bit

rate (col.5, ln.22-28 and fig.3, element 27);

encoding said first segment using a variable bit rate encoding method according

to the target quantization step size (fig.2, element 200);

determining a difference between the number of bits used to encode said first

segment and said first segment bit allocation (col.5, ln.8-14; note variance processor 8

does determine a differential image);

distributing said difference for use in encoding at least one subsequent segment

to determine a subsequent segment bit allocation (note the differential image data or the

difference, at output of element 8 of ifg.2, is fed into element 27 of fig.3 for determining

a subsequent segment bit allocation);

determining a new target quantization step size for encoding a said subsequent

segment on the basis of a new target segment bit rate calculated using said segment

target bit rate and the distributed difference (see fig.4D and element 30 of fig.3); and

encoding said subsequent segment using a variable bit rate encoding method

according to the new target quantization step size (fig.2, note control block 20

determines the new quantization step size and utilizes the new quantization step size

35, obtained by recursive adjustment encoding method as shown in fig.4A, and then

feeds the new quantization step size into quantizer 11 for encoding images at VLC 200);

wherein variable bit rate encoding is employed for encoding pictures within a

segment whilst maintaining a substantially constant bit rate over said sequence (col.3,

ln.29-34 and col.5, ln.3-5, note in fig.2, a recursive rate control encoding scheme is

applied to recursively update the quantization step size and in fig.3, note the

quantization step size processor 30 utilizes the efficiency coefficient control unit to

manage the buffer occupancy and recursively apply or maintain the substantially

constant bit rate over the sequence of images).

Regarding claims 3 and 14, Singhal discloses the use of a group of pictures

having I-picture and optionally at least a P and/or B picture (col.6, ln.20-26; Singhal

discloses the use of the intra coded pictures or I pictures, and as well as the use of

predictive (P-picture) or bidirectionally predictive (B-picture) coded pictures MPEG

encompasses the use of I, P and B frames).

Allowable Subject Matter

4.   Claims 4-11, 15-18, 20-23 and 26-29 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims.

5.   The following is a statement of reasons for the indication of allowable subject

matter: Singhal discloses a motion compensation coder employing an image coding

control method. The prior art does not specifically disclose the specifics of the

equations mentioned in dependent claims 4, 15, 20 and 26-29.

Conclusion

2.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.
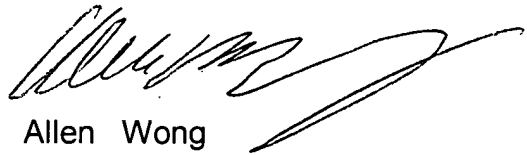
Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Allen Wong whose telephone number is (571) 272-7341.

The examiner can normally be reached on Mondays to Thursdays from 8am-6pm

Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Allen   Wong
Primary Examiner
Art Unit 2613

AW
11/17/05